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Christine R. Ethridge, Esq.
Kirkpatrick & Lockhart Nicholson Graham LLP
Henry W. Oliver Building
535 Smithfield Street
Pittsburgh, PA 15222-2312

EXAMINER

ALEXANDER, MICHAEL P

ART UNIT PAPER NUMBER

1742

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,472

Applicant(s)

DILMORE ET AL.

Examiner

Michael P. Alexander

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 3-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is supplemental to the Office Action of 3 May 2006. Claim(s) 1-24 is/are pending.

Election/Restrictions

Claims 3-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1 February 2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Hasegawa (US 5,766,376) of Ishii et al. (US 6,494,970) which were cited by applicant in IDS dated 5-10-05.

Claim 1 is rejected on the same grounds as stated in the Office Action filed on 2 August 2005. Although the claim has been amended from “consisting essentially of” to “consisting of”, the claim still recites “balance essentially iron”. The Examiner asserts that the 0.01% Nb or 0.001% B is still within the broadest reasonable interpretation of balance essentially iron.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (US 5,766,376) cited by applicant in IDS dated 5-10-05 in view of Table 1.1 of Introduction Steels and Cast Irons publication.

Claim 2 is rejected on the same grounds as stated in the Office Action filed on 2 August 2005. Although the claim has been amended from "consisting essentially of" to "consisting of", the claim still recites "balance essentially iron". The Examiner asserts that the 0.01% Nb is still within the broadest reasonable interpretation of balance essentially iron.

Claim 21 is rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ishii et al. US 6,494,970) alone or in view of Lyon (US 2,942,339), on the same grounds as stated in the Office Action of 2 August 2005.

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Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa (US 5,766,376) alone or in view of Lyon (US 2,942,339), on the same grounds as stated in the Office Action of 2 August 2005.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (KR 9004845).

Regarding claim 1, Lee teaches (abstract) an alloy steel, in weight percent, having amounts of C, Mn, Si, Cr, Ni, Mo, W, V, Cu, P, S, Ca, N, Al which overlaps with the claimed ranges, which is prima facie evidence of obviousness (see MPEP 2144.05 I), and balance iron. Lee does not necessitate any additional alloying elements. It would have obvious to one of ordinary skill in the art to select the desired amounts of the elements from the ranges disclosed by Lee because Lee teaches the same utility throughout the disclosed ranges.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenichi et al. (JP 09-194998).

Regarding claims 1-2, Kenichi teaches (abstract) an alloy steel, in weight percent, having amounts of C, Mn, Si, Cr, Ni, Mo, W, V, Cu, P, S, Ca, N, Al which overlaps with the claimed ranges, which is prima facie evidence of obviousness (see MPEP 2144.05 I), and balance iron. Kenichi does not necessitate any additional alloying elements. It would have obvious to one of ordinary skill in the art to select the desired amounts of the elements from the ranges disclosed by Kenichi because Kenichi teaches the same utility throughout the disclosed ranges. Also, the Examiner asserts that 0.01% Ca would be "about 0.02% Ca".

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Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenichi (JP 09-194998) in view of in view of Table 1.1 of Introduction Steels and Cast Irons publication.

Regarding claims 1-2, Kenichi teaches (abstract) an alloy steel, in weight percent, having amounts of C, Mn, Si, Cr, Ni, Mo, W, V, Cu, P, S, Ca, N, Al which overlaps with the claimed ranges, which is prima facie evidence of obviousness (see MPEP 2144.05 I), and balance iron. Kenichi does not necessitate any additional alloying elements. Additionally, Table 1.1 teaches adding calcium for sulfide shape control. Since the amount of calcium is a result effective variable as taught by Table 1.1, it would have been obvious to one of ordinary skill in the art to add the desired amount of calcium in order to control sulfide shape as a routine optimization as taught by Table 1.1. See MPEP 2144.05 II.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenichi as applied to claims 1-2 above, and further in view of Lyon (US 2,942,339).

Regarding claims 21-22, Kenichi does not specify using the steel for a bomb casing material. However, Lyon teaches (col. 2 lines 40-50) that low-carbon steels having high strength and ductility are conventionally used for making bomb casings. Since Kenichi is a low-carbon steel having high strength and ductility, then it would be an obvious choice well within the skill of the artisan to use Kenichi steel for making bomb casings.

Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (KR 9004845) in view of in view of Table 1.1 of Introduction Steels and Cast Irons publication.

Regarding claim 23, Lee teaches (abstract) an alloy steel, in weight percent, having amounts of C, Mn, Cr, Ni, Mo, W, V, Cu, P, S, Ca, N, Al which overlaps with the claimed ranges, which is prima facie evidence of obviousness (see MPEP 2144.05 I), and balance iron. Lee does not necessitate any additional alloying elements. It would have obvious to one of ordinary skill in the art to select the desired amounts of the elements from the ranges disclosed by Lee because Lee teaches the same utility throughout the disclosed ranges.

Still regarding claim 23, Table 1.1 teaches that silicon is added to increase solid-solution strength and hardness as well as to increase hardenability and remove oxygen. Since Si is a result effective variable as taught by Table 1.1, it would have been obvious to one of ordinary skill in the art to modify the steel of Lee by selecting the desired silicon content in order to increase solid-solution strength and hardness as well as to increase hardenability and remove oxygen as a routine optimization. See MPEP 2144.05 II.

Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenichi in view of in view of Table 1.1 of Introduction Steels and Cast Irons publication.

See the rejection of claims 1-2 above. Kenichi does not specify the claimed silicon content. However, Table 1.1 teaches that silicon is added to increase solid-solution strength and hardness as well as to increase hardenability and remove oxygen.

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Since Si is a result effective variable as taught by Table 1.1, it would have been obvious to one of ordinary skill in the art to modify the sell of Kenichi by selecting the desired silicon content in order to increase solid-solution strength and hardness as well as to increase hardenability and remove oxygen as a routine optimization. See MPEP 2144.05 II.

Claims 1 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida (US 4,729,872).

Regarding claims 1 and 23-24, Kishida teaches (abstract, col. 6 lines 17-24) an alloy steel in weight percent having 0.10-0.70% C; 2.00% or less Mn; 2.00% or less Si; 7.00% or less Cr; 4.00% or less Ni; 0.20-12.00% of W; 3.00% or less V; 3.00% or less Cu; up to 0.20% N; and balance essentially iron. Kishida does not necessitate the presence of any additional elements. The Examiner notes that the claimed alloy composition overlaps with the composition disclosed by Kishida, which is prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amounts of each of the elements from the ranges disclosed by Kishida because Kishida teaches the same utility throughout the disclosed ranges.

Response to Arguments

Applicant's arguments filed 1 February 2006 have been fully considered but they are not persuasive.

First, applicant argues that claim 1 excludes any elements other than the recited elements apart from impurities, and in particular that claim 1 excludes Ti, Zr, Nb and B.

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The Examiner disagrees. The Examiner notes that nowhere in the claims does it state that the alloy excludes any elements other than the recited elements apart from impurities. The Examiner notes that claim 1 uses the closed transitional language "consisting of". However, claim 1 also states "balance essentially iron". The Examiner notes that claims must be given their broadest reasonable interpretation. See MPEP 2111. The Examiner asserts that the term "balance essentially iron" would not exclude 0.001% Ti, 0.001% Zr, 0.01% Nb or 0.001% B. One of ordinary skill in the art would reasonably interpret the term "balance essentially iron" to include such small amounts of additional elements.

Second, applicant argues that the cited references do not specify the presence of Ca and therefore do not meet claim 1. In response, the Examiner notes that claim 1 does not require the presence of calcium. Furthermore, the cited references would inherently include some trace amount of calcium.

Third, the applicant argues that higher Si content of claim 2 compared to Ishii is an important feature of applicant's alloy steel because of its unusual heat treatment, its use of a tempered martensite embrittlement, etc. The Examiner cannot accept applicant's remarks as evidence of unexpected result because the remarks are not evidence submitted in affidavit or declaration form. Furthermore, the applicant's arguments do not show unexpected results of the silicon content. Instead they are directed towards processing limitations which are not in the claims.

Fourth, applicant argues that the types of bombs made today were not known in 1955 when the Lyon application was filed. In response, the Examiner notes that claims

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21 and 22 are merely directed towards a bomb casing and not to a "modern" bomb casing.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Alexander whose telephone number is 571-272-8558. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mlg
mpa

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700